

REMARKS

Applicant affirms the election of claims 1-9 without traverse.

Claims 1-9 were rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter not described in the specification. It is respectfully submitted that the rejection cannot be properly applied to the amended claims. In particular, note page 9, lines 8-18, where it is stated:

The slide rotor 504 is driven to rotate by a servo motor (not shown) and carries ten slide frames 510 that are radially asserted into and detachable from it. A top view of single slide frame 510 is shown in Figure 6. Here, a different slide holding a tissue sample is held in each slide position 512a-512e. The slide frame 510 comprises a slide frame base 514 shown in Figure 7. The slide frame base includes a plurality of heated areas 516 which underlie each of the slide positions 512a-512e and incorporate resistive heating elements, not shown. The heating elements are integrally formed in the slide frame base 514. Electricity for powering the elements is provided into the slide frame 510 from the assembly base 502 via first and second contacts. Further, third and fourth contacts 520 enable temperature sensing of the heated areas via thermocouples also integrally formed in the slide frame base 514.

The claims no longer recite electronic control for heating "individual" heating surfaces. The separate electrical power connections can be seen as connections 518 which are provided to each of the ten slide frames. The thermocouples are defined to be integrally formed in the slide frame base and are thus necessarily associated with the heating elements which are also integrally formed in the slide frame base. Reconsideration of the rejection under 35 U.S.C. § 112, first paragraph, is requested.

Claims 1-9 were rejected under 35 U.S.C. § 112, second paragraph, with respect to the recitation of individual heating surfaces heated or controlled individually. That feature is no longer recited in the claims. Further, "the heaters" has been changed to "the first and second heating elements" to provide proper antecedent basis. Reconsideration of the rejection is requested.

Claims 1-3 were rejected under 35 U.S.C. § 102(b) as being anticipated by Rogers et al. That rejection is respectfully traversed.

In the embodiment of Rogers et al. which supports the slides on a moving platform, a rotary carousel, the typical approach of moving the slides into a heated chamber is used. Specifically, in Figure 4 the heating element 80 provides heat to air blown into the interior of the



unit to heat the slides. In Figure 6, a radiant heater 90 is used. The support members 26 (Figures 2 and 3) on the carousel cannot be considered heating stations since they do not provide heat to the slides. Rather, they simply support the slides within the heated environment. In yet another embodiment shown in Figure 7 in which a platen 94 is heated, the platen is stationary and the slide is moved slowly across the platen. To clarify the noted distinctions, claim 1 has been amended to explicitly recite that each heating station moves with the platform and comprises a heating element. No such heating stations on a moving platform are suggested by Rogers et al. Accordingly, reconsideration of the rejection under 35 U.S.C. § 102(b) is respectfully requested.

Claims 5-9 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Rogers et al. in view of Muller et al. or Potter et al. That rejection is respectfully traversed.

The claimed invention is a microscope slide stainer in which microscope slides are placed on a carousel and moved to a dispensing station where reagent is applied to the sample on the slide. Unlike prior systems which require that a slide be removed from the carousel to an incubation chamber or which surround a portion of the carousel with an incubation chamber, the present system supports the slides on heat stations on the carousel. With separate connections to various heating elements underlying the slides, incubation of selected slides can be provided even as the carousel rotates to move slides to the reagent dispensing station.

Because Rogers et al. relies on an incubation chamber surrounding a portion of the carousel, Rogers et al. can not independently index slides to external dispensing stations 42, 46, 48 while assuring that appropriate slides remain in the incubation chamber. That is, while a slide is at the dispensing station 48, all slides on the carousel one half circle counter-clockwise from that slide must be in the incubation chamber, and all slides one half circle clockwise must be outside the incubation chamber. With the present invention, incubation can be independent of carousel position; any slide can be incubated as any slide is positioned at a dispensing station.

The Muller et al. and Potter et al. references disclose heating of stationary samples, disposed in discrete locations, to different temperatures. There is no teaching in either of those references that such a discrete heating arrangement should or even could be applied to a system in which (1) slides are mounted on a moving carousel and heated by an air convection or radiant heater (Figures 4 and 6 of Rogers et al.) or (2) slides are positioned on a fixed, non-moving platform and heated by resistive heating elements (Figure 7). Thus, there is no suggestion of combining either Potter et al. or Muller et al. with the carousel embodiment of Rogers et al. In fact, Rogers et al. teach against such a combination. Despite an awareness of heated platens for

heating slides, as evidenced by their fixed heat station embodiment of Figure 7, Rogers et al. taught the use of a conventional air heating approach in the carousel embodiments of Figures 4 and 6.

Claims 5-9 were also rejected under 35 U.S.C. § 103 as being unpatentable over Muraishi in view of Muller et al. or Potter et al. That rejection is respectfully traversed.

The Examiner states that Muraishi "comprises a platform for supporting a plurality of samples, a plurality of heaters 71 positioned on the platform for providing heat to the samples (Figures 1 and 6 and column 6, lines 32-48). The moving platform is taught by Muraishi at Figures 10 and 11." It is respectfully submitted that Muraishi does not teach a moving platform having heaters thereon or a slide supporting carousel which allows application of reagent to the slides at a dispensing station even as slides thereon are incubated.

The heaters 71 are both pictorially represented (Figures 1 and 4) and described (column 6, line 34) as attached to the fixed incubator 20, not on a moving platform. The incubator remains stationary as the slide feed 40 moves in the direction A and then inserts a slide in a compartment 21. Further, the heaters 71 are positioned to each side of the compartments, not underlying the housing compartments 21 that support the chemical slides.

The Muraishi reference describes a second embodiment, illustrated in Figures 10-11, with a moving incubator 20. The samples are contained within the incubator 20 and index past a fixed read-out head (column 13, lines 23-33) for optical measurement. However, no heaters are shown and the disclosure is silent on the issue of where the heaters are located in this alternative embodiment. It is likely that the samples would be heated through heated air surrounding the carousel, as described in column 6, lines 1-57 and as in Rogers et al., in keeping with conventional design practice in carousel systems. Further, with respect to claim 5, no reagent is applied to the slides positioned in the compartments within the incubator rotor. Nor could reagent be applied to the sample on the moving incubator since each slide is positioned in a closed compartment. In Muraishi, reagent is applied to the sample before the slide is positioned in the incubation carousel. By contrast, with the claimed invention the slides on the moving platform are moved to the dispensing station without having to be removed from the incubating heat stations.

New claims 14 and 17 recite that the heating elements underlie the slides. By contrast, the heaters 71 of Muraishi are to either side of the sample. The region underlying the samples is left open to receive the optical read-out head 50. As a result of the relative positioning of the

heaters in Muraishi, temperature gradients from the sample edge to the sample center can be expected.

New claims 15, 16, 18 and 19 recite that the underlying heating elements are resistive heating elements which are integrally formed in the heating stations.

Accordingly, it is submitted that Muraishi teaches no more than Rogers et al. and, specifically, fails to teach a heating element on a moving platform which carries microscope slides to a dispensing station. Further, the reference fails to teach a heater underlying the slide as recited in new claims 14-19.

Claims 1-9 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting. Applicant will address that issue when otherwise allowable subject matter is identified in each application.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned at (781) 861-6240.

Respectfully submitted,

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.

By 

James M. Smith, Esq.

Registration No. 28,043

Telephone (781) 861-6240

Facsimile (781) 861-9540

Lexington, Massachusetts 02421-4799

Dated: 

